



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 6th Semester Examination, 2021

DSE3-COMPUTER SCIENCE (63)

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

**The question paper contains DSE63-E1 and DSE63-E2 and DSE63-E3
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.**

DSE63-E1- DIGITAL IMAGE PROCESSING

Attempt any *two* questions 20×2= 40

1. Explain intensity transformations, Contrast stretching and Smoothing filters in Spatial Domain Filtering. 20
2. Discuss the Lossy and the Lossless image compressions with suitable examples. 20
3. Explain image restoration techniques and discuss Restoration from projections. 20
4. Write short notes on the following points used in Digital Image Processing. 5×4 = 20
 - (i) Brightness
 - (ii) Coordinate conventions
 - (iii) Imaging Geometry
 - (iv) Perspective Projection.

DSE63-E2- INTRODUCTION TO DATA SCIENCES

Answer any *two* questions 20×2= 40

1. Explain in detail the Data Scientist's Tool Box and also give an introduction to the tools used in building the Data Analysis Software. 20
2. Give an overview of R programming. Also explain the Control structure and the Functions of R programming with suitable examples. 20

3. Data are collected from the web, APIs, databases and from colleagues in various formats. Write the processes of data cleaning and making the data tidy. 20
4. Discuss the Concepts and Tools used for reporting modern data analysis in a reproducible manner. 20

DSE63-E3- DATA MINING

Answer any *two* questions

20×2= 40

1. What do you understand by the word “Data Mining”? Explain the Data Mining from a Database Perspective. 20
2. What are the Data Mining Techniques? Discuss the Statistical Perspective on Data Mining, Similarity Measures and Neural Networks. 20
3. Explain the Statistical-based algorithms and the Distance-based algorithms with appropriate examples. 20
4. What is Clustering? Discuss the Clustering for Large Databases. Also discuss in brief the Clustering with Categorical Attributes. 20

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